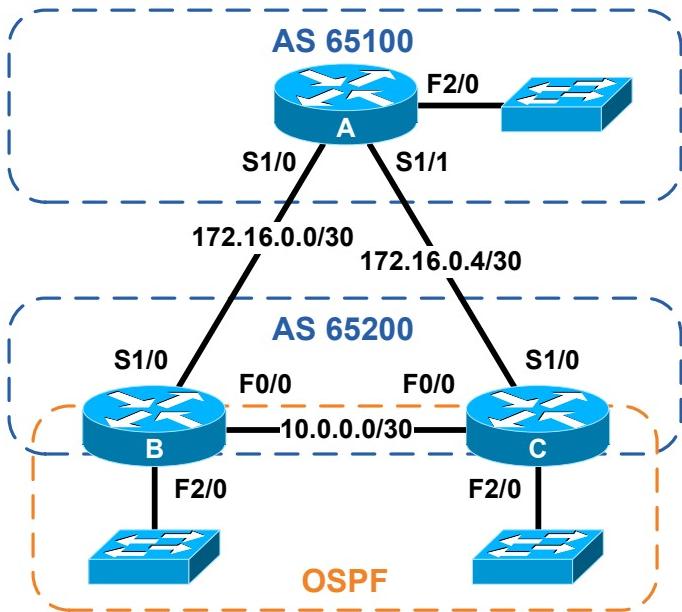


BGP • PART 1

Attribute Types			About BGP							
Well-known Mandatory · Must be supported and propagated			Type	Path Vector						
Well-known Discretionary · Must be supported; propagation optional			eBGP AD	20						
Optional Transitive · Marked as partial if unsupported by neighbor			iBGP AD	200						
Optional Nontransitive · Deleted if unsupported by neighbor			Standard	RFC 4271						
Attributes			Protocols							
Name	Type	Description	IP							
Aggregator	OT	ID and AS of router which performed summarization	Transport							
AS Path	WM	List of autonomous systems which the advertisement has traversed	TCP/179							
Atomic Aggregate	WD	Includes ASes which have been dropped due to route aggregation	Authentication							
Cluster ID	ON	Originating cluster	MD5							
Community	OT	Route tag	Terminology							
Local Preference	WD	Metric for internal neighbors to reach external destinations (default 100)	Autonomous System (AS)		A logical domain under the control of a single entity					
Multiple Exit Discriminator (MED)	ON	Metric for external neighbors to reach the local AS (default 0)	External BGP (eBGP)		BGP adjacencies which span autonomous system boundaries					
Next Hop	WM	External peer in neighboring AS	Internal BGP (iBGP)		BGP adjacencies formed within a single autonomous system					
Origin	WM	Origin type (IGP, EGP, or unknown)	Synchronization Requirement		A route must be known by an IGP before it may be advertised to BGP peers					
Originator ID	ON	Identifies a route reflector	Packet Types							
Weight	O	Cisco proprietary, not communicated to peers (default 0)	Open	Update						
Path Selection			Keepalive	Notification	Neighbor States					
Attribute	Description		Idle		Idle · Neighbor is not responding					
1 Weight	Administrative preference		Active · Attempting to connect		Active · Attempting to connect					
2 Local Preference	Communicated between peers within an AS		Connect · TCP session established		Connect · TCP session established					
3 Self-originated	Prefer paths originated locally		Open Sent · Open message sent		Open Sent · Open message sent					
4 AS Path	Minimize AS hops		Open Confirm · Response received		Open Confirm · Response received					
5 Origin	Prefer IGP-learned routes over EGP, and EGP over unknown		Established · Adjacency established		Established · Adjacency established					
6 MED	Used externally to enter an AS		Troubleshooting							
7 External	Prefer eBGP routes over iBGP		show ip bgp [summary]		show ip bgp [summary]					
8 IGP Cost	Consider IGP metric		show ip bgp neighbors		show ip bgp neighbors					
9 eBGP Peering	Favor more stable routes		show ip route [bgp]		show ip route [bgp]					
10 Router ID	Tie breaker		clear ip bgp * [soft]		clear ip bgp * [soft]					
					debug ip bgp [...]					
Influencing Path Selection										
Weight neighbor 172.16.0.1 weight 200	Local Preference bgp default local-preference 100									
MED default-metric 400	Route Map neighbor 172.16.0.1 route-map Foo									

BGP • PART 2

Configuration Example



```

interface Serial1/0
description Backbone to B
ip address 172.16.0.1 255.255.255.252
!
interface Serial1/1
description Backbone to C
ip address 172.16.0.5 255.255.255.252
!
interface FastEthernet2/0
description LAN
ip address 192.168.1.1 255.255.255.0
!
router bgp 65100
no synchronization
network 172.16.0.0 mask 255.255.255.252
network 172.16.0.4 mask 255.255.255.252
network 192.168.1.0
neighbor South peer-group
neighbor South remote-as 65200
neighbor 172.16.0.2 peer-group South
neighbor 172.16.0.6 peer-group South
no auto-summary
  
```

Router A

```

interface FastEthernet0/0
description Backbone to C
ip address 10.0.0.1 255.255.255.252
!
interface Serial1/0
description Backbone to A
ip address 172.16.0.2 255.255.255.252
!
interface FastEthernet2/0
description LAN
ip address 192.168.2.1 255.255.255.0
!
router ospf 100
network 10.0.0.1 0.0.0.0 area 0
network 192.168.2.1 0.0.0.0 area 1
!
router bgp 65200
no synchronization
redistribute ospf 100 route-map LAN_Subnets
neighbor 10.0.0.2 remote-as 65200
neighbor 172.16.0.1 remote-as 65100
no auto-summary
!
access-list 10 permit 192.168.0.0 0.0.255.255
!
route-map LAN_Subnets permit 10
match ip address 10
set metric 100
  
```

Router B

```

interface FastEthernet0/0
description Backbone to B
ip address 10.0.0.2 255.255.255.252
!
interface Serial1/0
description Backbone to A
ip address 172.16.0.6 255.255.255.252
!
interface FastEthernet2/0
description LAN
ip address 192.168.3.1 255.255.255.0
!
router ospf 100
network 10.0.0.2 0.0.0.0 area 0
network 192.168.3.1 0.0.0.0 area 2
!
router bgp 65200
no synchronization
redistribute ospf 100 route-map LAN_Subnets
neighbor 10.0.0.1 remote-as 65200
neighbor 172.16.0.5 remote-as 65100
no auto-summary
!
access-list 10 permit 192.168.0.0 0.0.255.255
!
route-map LAN_Subnets permit 10
match ip address 10
set metric 100
  
```

Router C

Router A Routing Table

C	172.16.0.0/30 is subnetted, 2 subnets
C	172.16.0.4 is directly connected, S1/1
C	172.16.0.0 is directly connected, S1/0
C	192.168.1.0/24 is directly connected, F2/0
B	192.168.2.0/24 [20/100] via 172.16.0.2
B	192.168.3.0/24 [20/100] via 172.16.0.2

Router B Routing Table

C	172.16.0.0/30 is subnetted, 2 subnets
B	172.16.0.4 [20/0] via 172.16.0.1
C	172.16.0.0 is directly connected, S1/0
C	10.0.0.0/30 is subnetted, 1 subnets
C	10.0.0.0 is directly connected, F0/0
B	192.168.1.0/24 [20/0] via 172.16.0.1
C	192.168.2.0/24 is directly connected, F2/0
O IA	192.168.3.0/24 [110/2] via 10.0.0.2, F0/0